

2.a)

Step	Confirmed	Tentative
1	<R1, 0, ->	∅
2	<R1, 0, ->	<R2, 1, R2>, <R3, 6, R3>
3	<R1, 0, ->, <R2, 1, R2>	<R3, 6, R3>
4	<R1, 0, ->, <R2, 1, R2>	<R3, 5, R2>, <R4, 3, R2>
5	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>	<R3, 5, R2>
6	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>	<R3, 5, R2>, <R5, 4, R2>, <R6, 6, R2>
7	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>, <R5, 4, R2>	<R3, 5, R2>, <R6, 6, R2>
8	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>, <R5, 4, R2>	<R3, 5, R2>, <R6, 5, R2>
9	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>, <R5, 4, R2>, <R3, 5, R2>	<R6, 5, R2>
10	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>, <R5, 4, R2>, <R3, 5, R2>	<R5, 5, R2>
11	<R1, 0, ->, <R2, 1, R2>, <R4, 3, R2>, <R5, 4, R2>, <R3, 5, R2>, <R6, 5, R2>	∅

2.b)

Destination	Next Hop	Cost
R2	R2	1
R3	R2	5
R4	R2	3
R5	R2	4
R6	R2	5

4.a)

Airport ::= SEQUENCE {

Name IA5String,

IATACode IA5String,

NumTerminals INTEGER,

NumGates INTEGER,

City IA5String

}

4.b)

<?xml version="1.0" encoding="UTF-8"?>

< schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

< element name="Airport">

< complexType>

< sequence>

< element name="Name" type="string"/>

```

    < element name="IATACode" type=" string"/>
    <element name="NumTerminals" type=" int"/>
    < element name="NumGates" type=" int"/>
    < element name="City" type=" string"/>
  </ sequence>
</complexType>
</ element>
</ schema>

```

5.a) Outer IP Header:

Source IPv4 Address: 203.0.113.222

Destination IPv4 Address: 233.252.0.14

5.b) Inner IP Header:

Source IPv4 Address: 198.51.100.11

Destination IPv4 Address: 198.51.100.77

5.c) **IPSec Mode: Tunnel Mode**

5.d)

IP Range: 198.51.100.224 to 198.51.100.255

Binary Representation:

198.51.100.224 → 11000110.00110011.01100100.11100000

198.51.100.255 → 11000110.00110011.01100100.11111111

The first 27 bits are identical: 11000110.00110011.01100100.111

Therefore, the subnet mask is /27.

This subnet covers 32 addresses (since $2^{32-27} = 2^{32-27} = 32$), which aligns with the given IP range.

Final CIDR Notation: **198.51.100.224/27**